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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,570	09/30/2003	Bo Xu	042390.P16151	4651

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INTEL CORPORATION
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MINNEAPOLIS, MN 55402

EXAMINER

AZAD, ABUL K

ART UNIT	PAPER NUMBER
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2626

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/673,570

Applicant(s)

XU ET AL.

Examiner

ABUL K. AZAD

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7-9,11-14,16-22,24,27 and 28 is/are rejected.
- 7) ☒ Claim(s) 3,5,6,10,15,23,25,26 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-29 are pending in this Office Action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 7-9, 11-14, 16-22, 24, 27, 28 are rejected under 35 U.S.C. 102(b) as being anticipated by deVries (US 6,289,309).

As per claim 1, deVries teaches, "a method, comprising":

"estimating the noise power spectrum for each frame of an audio signal based on a plurality of signal power spectrum values computed from a corresponding plurality of adjacent frames" (Fig. 4, element 412);

"computing dynamically an over-subtraction factor for each frame of the audio signal based on the estimated noise power spectrum of the frame" (Fig. 4, element 414);

"reducing the signal power spectrum of the audio signal at each frame in accordance with the over-subtraction factor computed for the frame" (Fig. 4, element 416).

As per claim 2, deVries teaches, "wherein said estimating the noise power spectrum comprises: computing the signal energy for each sub frequency band of each frame of the audio signal" (Fig. 4, element 410);

"deriving noise energy for each subband of each frame based on a plurality of signal energy values computed with respect to the same subband for a plurality of corresponding frames" (Fig. 4, element 412).

As per claim 4, deVries teaches, "wherein said computing the over-subtraction factor comprises: determining the signal to noise ratio of each frame based on the corresponding signal power spectrum and noise power spectrum computed and estimated for the frame" (col. 7, lines 61-64); and

"deriving an over-subtraction factor for the frame based on the signal to noise ratio dynamically determined for the frame" (col. 8, lines 11-63).

As per claim 7, deVries teaches, "performing a Fourier transform on the audio signal prior to said estimating the noise power spectrum to produce a transformed signal based on which the signal power spectrum of the audio signal is computed" (col. 3, lines 13-39); and

"performing a corresponding inverse Fourier transform, after said subtracting, using the subtracted signal power spectrum to produce an enhanced audio signal" (col. 3, lines 13-39).

As per claims 8, 9, 11-14, 16-22, 24, 27, 28, they are interpreted and thus rejected for the same reasons set forth in the rejection of claims 1, 2, 4 and 7.

Allowable Subject Matter

4. Claims 3, 5, 6, 10, 15, 23, 25, 26 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Abul K. Azad** whose telephone number is **(571) 272-7599**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richemond Dorvil**, can be reached at **(571) 272-7602**.

Any response to this action should be mailed to:

Commissioner for Patents

P.O. Box 1450

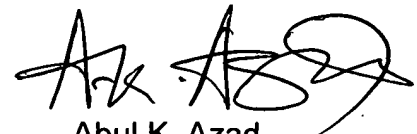
Alexandria, VA 22313-1450

Or faxed to: **(571) 273-8300**.

Hand-delivered responses should be brought to **401 Dulany Street, Alexandria, VA-22314** (Customer Service Window).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 18, 2007



Abul K. Azad
Primary Examiner
Art Unit 2626